SAMPLE METHOD CLAIMS:

1. A method of operating a data processing network, comprising:

performing an initial negotiation between a server of the network and a switch to which the server is connected, wherein the initial negotiation establishes an initial operating frequency of the link between the server and the switch;

determining an effective data rate of the server based on network traffic communicated over the link; and

responsive to determining that the effective data rate is materially different than the current bandwidth of the server-switch link, performing a subsequent negotiation to establish a modified operating frequency, wherein the modified operating frequency closer to the effective data rate than the initial operating frequency.

2. The method of claim 1, wherein the modified operating frequency is the lowest operating frequency accommodated by the server-switch link that is sufficient to handle the effective data rate.

3. The method of claim 1, further comprising, repeating, at specified intervals during the operation of the network, the determination of the effective date rate and the contingent initiation of a subsequent negotiation.

4. The method of claim 1, wherein the initial and subsequent negotiation are compliant with the IEEE 802.3 standard.

5. The method of claim 1, wherein determining the effective date rate includes accumulating information indicative of the amount of network traffic during a specified interval and calculating an effective data rate based thereon.

6. The method of claim 1, further comprising, responsive to determining that the effective data rate is greater than a specified percentage of the current bandwidth, performing a subsequent negotiation to establish a modified operating frequency, wherein the modified operating frequency is higher than the prior operating frequency.

7. A data processing network, comprising:

a central switch;

a server device including a processor, memory, and a network interface card connecting the server device to the central switch via a network link;

code means for performing an initial negotiation, wherein the initial negotiation establishes an initial operating frequency of the network link;

code means for determining an effective data rate of the server based on network traffic transmitted over the link; and

code means for performing a subsequent negotiation to establish a modified operating frequency responsive to determining that the effective data rate is materially different than the current bandwidth of the link, wherein the modified operating frequency is closer to the effective data rate than the initial operating frequency.

8. The network of claim 7, wherein the modified operating frequency is the lowest operating frequency accommodated by the server-switch link that is sufficient to handle the effective data rate.

9. The network of claim 7, further comprising, code means for repeating, at specified intervals during the operation of the network, the determination of the effective date rate, and the contingent initiation of a subsequent negotiation.

10. The network of claim 7, wherein the initial and subsequent negotiation are compliant with the IEEE 802.3 standard.

11. The network of claim 7, wherein the code means for determining the effective date rate includes code means for accumulating information indicative of the amount of network traffic during a specified interval and calculating an effective data rate based thereon.

12. The network of claim 7, further comprising, code means for performing a subsequent negotiation to establish a modified operating frequency responsive to determining that the effective data rate is greater than a specified percentage of the current bandwidth, wherein the modified operating frequency is higher than the prior operating frequency.

13. The network of claim 7, wherein the initial and subsequent negotiations are initiated by the central switch.

14. The network of claim 7, wherein the initial and subsequent negotiations are initiated by the server device.

15. A server device suitable for use in a server cluster, comprising:

at least one processor;

a system memory accessible to the processor;

a network interface card configured to connect the server device to a central switch over an ;

code means for performing an initial negotiation, wherein the initial negotiation establishes an initial operating frequency of the network link;

code means for determining an effective data rate of the server based on network traffic transmitted over the link; and

code means for performing a subsequent negotiation to establish a modified operating frequency responsive to determining that the effective data rate is materially different than the current bandwidth of the link, wherein the modified operating frequency is closer to the effective data rate than the initial operating frequency.

16. The server device of claim 15, wherein the modified operating frequency is the lowest operating frequency accommodated by the server-switch link that is sufficient to handle the effective data rate.

17. The server device of claim 15, further comprising, code means for repeating, at specified intervals during the operation of the network, the determination of the effective date rate and the contingent initiation of a subsequent negotiation.

18. The server device of claim 15, wherein the code means for determining the effective date rate includes code means for accumulating information indicative of the amount of network traffic during a specified interval and calculating an effective data rate based thereon.

19. The server device of claim 15, further comprising, code means for performing a subsequent negotiation to establish a modified operating frequency responsive to determining that the effective data rate is greater than a specified percentage of the current bandwidth, wherein the modified operating frequency is higher than the prior operating frequency.

20. The server device of claim 15, wherein the network interface card includes a clock unit configured to provide a clocking signal that controls the link operating frequency, and further wherein the code means for establishing the modified operating frequency includes code means for programming a clock register that controls the frequency of the clocking signal.